

LATILUB 82-20T

Self-lubricating product based on Polyamide 12 (PA 12). PTFE.

The products mentioned herein are not suitable for applications in contact with foodstuffs or for potable water transportation, or for toy manufacturing.

The products mentioned herein are not suitable for applications in the pharmaceutical, medical or dental sector.

PHYSICAL PROPERTIES

	STANDARD	VALUE MEASURE UNITS
Density	ISO 1183	1.14 g/cm ³
Linear shrinkage at moulding		
Longitudinal (0.078in/8,700psi)	ISO 294-4	0.70 ÷ 1.00 %
Transversal (0.078in/8,700psi)	ISO 294-4	1.50 ÷ 1.80 %
Dimensional stability	---	46
Moisture absorption		
saturation, in air	ISO 62-4	0.60 %

MECHANICAL PROPERTIES

CHARPY impact strength

Unnotched, at 23°F	ISO 179-1eU	NB ft.lb/in ²
Notched, at +23°F	ISO 179-1eA	3.0 ft.lb/in ²

MECHANICAL PROPERTIES

Tensile elongation

At yield (0.196 in/min), 23°F	ISO 527	>10 %
At yield (0.196 in/min), 60°F	ISO 527	>10 %
At yield (0.196 in/min), 90°F	ISO 527	>10 %
At yield (0.196 in/min), 120°F	ISO 527	>10 %
At yield (0.196 in/min), 150°F	ISO 527	>10 %
At break (0.196 in/min), 23°F	ISO 527	>50 %
At break (0.196 in/min), 60°F	ISO 527	>50 %
At break (0.196 in/min), 90°F	ISO 527	>50 %
At break (0.196 in/min), 120°F	ISO 527	>50 %
At break (0.196 in/min), 150°F	ISO 527	>50 %

Tensile strength

At yield (0.196 in/min), 23°F	ISO 527	5250 psi
At yield (0.196 in/min), 60°F	ISO 527	2175 psi
At yield (0.196 in/min), 90°F	ISO 527	1885 psi
At yield (0.196 in/min), 120°F	ISO 527	1305 psi
At yield (0.196 in/min), 150°F	ISO 527	870 psi
At break (0.196 in/min), 23°F	ISO 527	>7500 psi
At break (0.196 in/min), 60°F	ISO 527	>7500 psi
At break (0.196 in/min), 90°F	ISO 527	>7500 psi
At break (0.196 in/min), 120°F	ISO 527	>7500 psi
At break (0.196 in/min), 150°F	ISO 527	>7500 psi

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MECHANICAL PROPERTIES

Elastic modulus

Tensile (0.04 in/min), 23°F	ISO 527	180	kpsi
Tensile (0.04 in/min), 60°F	ISO 527	73	kpsi
Tensile (0.04 in/min), 90°F	ISO 527	44	kpsi
Tensile (0.04 in/min), 120°F	ISO 527	33	kpsi
Tensile (0.04 in/min), 150°F	ISO 527	22	kpsi

THERMAL PROPERTIES

Coefficient of linear thermal expansion (CLTE)

30°F to 100°F (longitudinal)	ISO 11359	90	$\times 10^{-6} \text{ K}^{-1}$
30°F to 100°F (transversal)	ISO 11359	90	$\times 10^{-6} \text{ K}^{-1}$

VICAT - Softening point

11 lb (heating rate 250°F/h)	ISO 306	275	°F
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HDT - Heat Deflection Temperature

66 psi	ISO 75	203	°F
264 psi	ISO 75	104	°F

ELECTRICAL PROPERTIES

Electrical resistivity

surface, dry	ASTM D 257 / ASTM D4496	1E12	ohm
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Dielectric strength (short period)

0.078 in. thickness, 73°F, dry	ASTM D 149	635	kV/mm
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TRIBOLOGICAL PROPERTIES

Wear Factor

	LATI (ISO 7148-2)	80	$10^{-8} (\text{mm}^3/\text{N m})$
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Friction Coefficient

static	LATI (ISO 7148-2)	0.21	
dynamic	LATI (ISO 7148-2)	0.24	

STORAGE

Best storage conditions of sealed, undamaged packages are warm environmental temperature in dry storage facilities able to protect from weather and accidental damage. PAY ATTENTION! Material is prone to absorb moisture.

HANDLING AND SAFETY

Detailed information about a safe treatment of the material are indicated in the "Material Safety Data Sheet" (MSDS) furnished with the first material supply. The MSDS may be also sent again in case of loss.

PREDRYING CONDITIONS (Hot-air dryer)

Predrying needed. Predrying conditions are: at least 2 hours at $175 \div 210^{\circ}\text{F}$. Increase time in case of damp material. Maximum suggested moisture content: 0.1%. Use of desiccant dryers or vacuum ovens allows a reduction in drying time.

BARREL TEMPERATURE PROFILE

Suggested barrel temperature profile (zone 1 - zone 2 - zone 3 - nozzle): $390-410-430-410^{\circ}\text{F}$.

RESIDENCE TIME

Maximum allowable residence time: $8 \div 10$ minutes. Do not exceed this limit. Maximum number of complete shots (in the barrel) suggested: $3 \div 5$

MELT TEMPERATURE

Suggested range of melt temperature: $410 \div 430^{\circ}\text{F}$. On small machines, running short cycles, it is possible to use higher melt temperatures to improve plastification, fluidity and surface appearance, paying attention to any indication of material degradation.

MOLD TEMPERATURE

Suggested range of mold temperature: $105 \div 140^{\circ}\text{F}$. This can be significantly different from the tool settings, due to the cooling system efficiency and the accuracy of the temperature control on the tool. If molding temperature is lower than suggested, part annealing may be necessary.

INJECTION SPEED

Advisable injection speed: medium to high. Best results are achieved by using an injection profile.

TANGENTIAL SCREW VELOCITY (V)

Maximum suggested tangential velocity (V): $0.65 \div 1.00$ fps. The maximum rotational speed may be calculated by means of the following equation: $\text{rpm} = S/d \cdot 229$, where d is the screw diameter (in).

INJECTION PRESSURE

Maximum advisable injection pressure at nozzle: $20 \div 60$ MPa. Please, check on manual of injection molding machine the ratio between specific pressure (at nozzle) and hydraulic pressure (of oil).

PACKING PRESSURE

Typical suggested packing pressure (at nozzle): $65 \div 80\%$ of injection pressure.

CUSHION

Minimum suggested cushion: $0.10 \div 0.25$ in.

BACK PRESSURE

Suggested backpressure: $70 \div 290$ psi (hydraulic pressure).

REGRIND USAGE

Maximum suggested regrind percentage: 15%. In-loop regrind is suggested. Regrind must be dried.

HOT RUNNER MOLDS

Hot runner molds can be used when a very tight temperature control is assured.

VALVE GATES / SMALL GATES

Valve gates or small injection gates can be used.

EQUIPMENT WEAR AND CORROSION

Usually, critical processing conditions (high injection rate, high back pressure and high screw rotating speed, etc.) and/or disadvantageous geometric conditions (low wall thickness, low diameters, sharp fillet radius, etc.) generate wear on equipment. Wear increases in case of filled materials (particularly fibers filled ones). Appropriate surface treatments of equipment are suggested in these cases, as well as a proper venting to avoid material overheating. It is advisable to use a corrosion-resistant steel to make the mold.

Check the proper "Molding guide" for further details.

APPROVALS

Please, check our site or contact LATI for details.

CONTACTS

LATI Industria Termoplastici S.p.A.